

AN7142

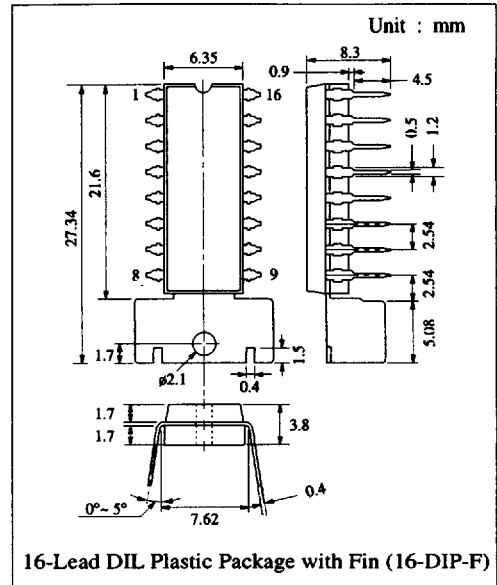
0.9W Dual Audio Power Amplifier

■ Description

The AN7142 is a monolithic integrated circuit designed for dual audio power amplifiers in consumer applications. It is suitable for portable stereo radio/cassette recorders.

■ Features

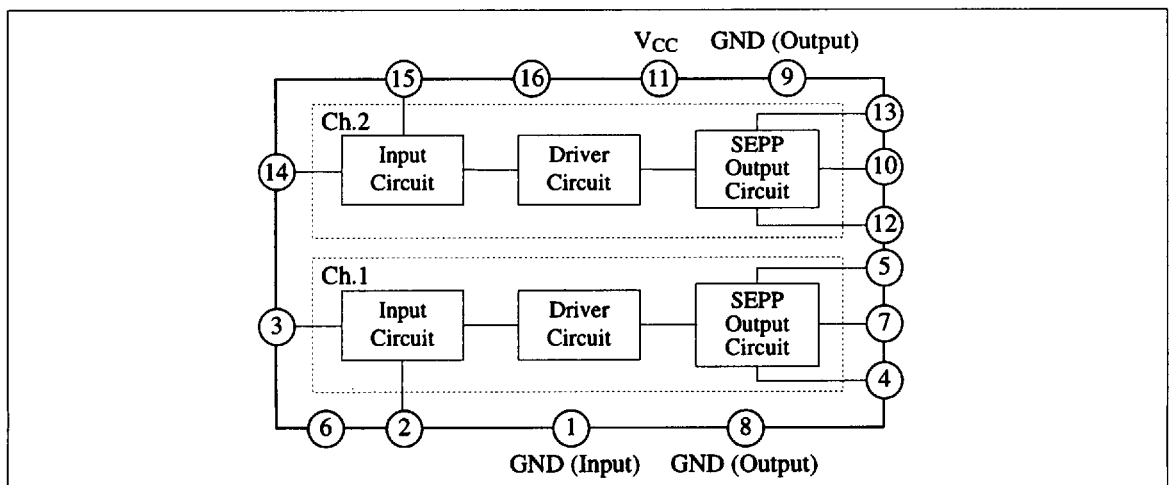
- Wide operating voltage range: $V_{CC} = 3.9V \sim 18V$
- Dual channel operation in a single DIP package
- Large maximum output power: $P_O = 0.9W$ at $V_{CC} = 6V, R_L = 4\Omega$



■ Pin

| Pin No | Pin Name | Pin No | Pin Name |
|--------|---------------------------------------|--------|---------------------------------------|
| 1 | GND (Input) | 9 | GND (Output) Ch.2 |
| 2 | Negative Feedback Ch.1 | 10 | Output Ch.2 |
| 3 | Input Ch.1 | 11 | V _{CC} |
| 4 | Crossover Distortion Suppression Ch.1 | 12 | Bootstrap Ch.2 |
| 5 | Bootstrap Ch.1 | 13 | Crossover Distortion Suppression Ch.2 |
| 6 | N.C. | 14 | Input Ch.2 |
| 7 | Output Ch.1 | 15 | Negative Feedback Ch.2 |
| 8 | GND (Output) Ch.1 | 16 | Ripple Filter |

■ Block Diagram



■ Absolute Maximum Ratings (Ta=25°C)

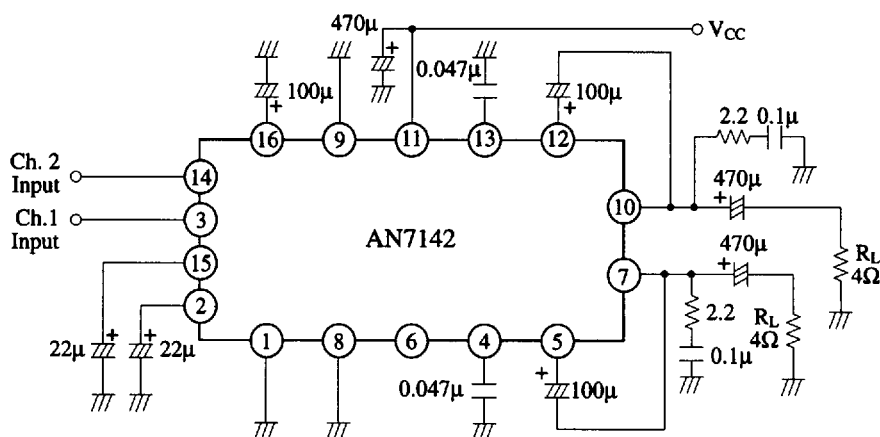
| Item | Symbol | Rating | Unit |
|-------------------------------|-----------------|------------|------|
| Supply Voltage | V _{CC} | 18 | V |
| Supply Current | I _{CC} | 4 | A |
| Power Dissipation | P _D | 8.3 | W |
| Operating Ambient Temperature | Topr | -30 ~ +75 | °C |
| Storage Temperature | Tstg | -55 ~ +150 | °C |

Operating Supply Voltage Range: V_{CC} = 3.9V ~ 18V

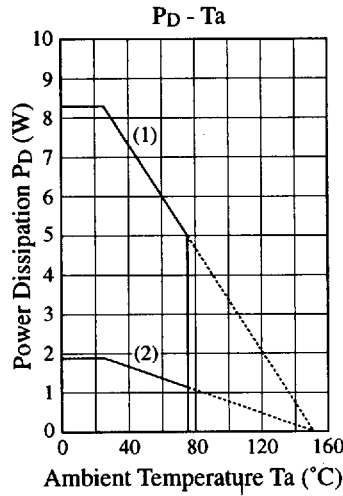
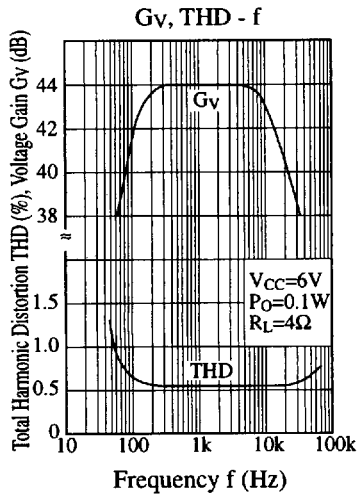
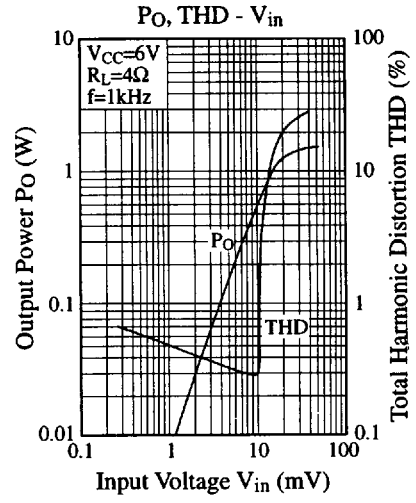
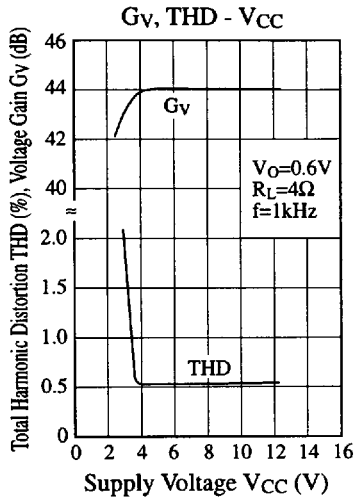
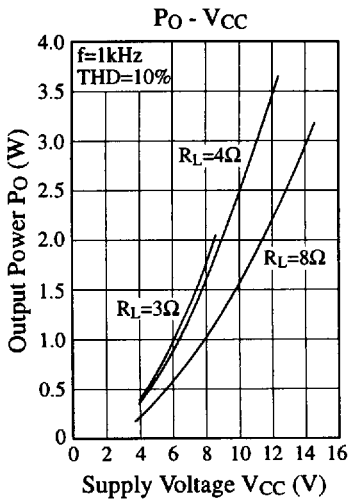
■ Electrical Characteristics (V_{CC}=6V, R_L=4Ω, f=1kHz, Ta=25°C)

| Item | Symbol | Condition | min. | typ. | max. | Unit |
|---------------------------|---------------------|---|------|------|------|------|
| Quiescent Current | I _{CQ} | V _{in} = 0mV | 9 | 14 | 21 | mA |
| Output Noise Voltage | V _{no} | V _{in} = 0mV, R _g = 10kΩ, With filter 15~30kHz (12dB/OCT) | | 0.3 | 0.5 | mV |
| Voltage Gain | G _V | V _O = 0.5V | 41.5 | 43.5 | 45.5 | dB |
| Total Harmonic Distortion | THD | V _O = 0.5V | | 0.6 | 1.1 | % |
| Maximum Output Power | P _{O(max)} | THD = 10% | 0.7 | 0.9 | | W |
| Channel Balance | CB | V _O = 0.5V | | | 1 | dB |

■ Application Circuit



■ Characteristics Curve



- (1) 8.33W With ∞ heat sink (θ_{j-a}=15°C/W)
- (2) 1.87W Without heat sink (θ_{j-a}=67°C/W)

■ Printed Circuit Board Layout (Scale: 1:1)

